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Science User Scripts for Exercising Evaluation Package 4

Technical Paper

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1. Introduction

1.1 Purpose

This paper provides background material on Evaluation Package 4 and scripts that science users can use to exercise the functionality of Evaluation Package 4 across three areas:

- I. Exploration of Scientist Workbench
- II. Exploration of Advertisement Service
- III. Exploration of EOSView

The examples are presented as a list of "actions" and "results" with some introductory material and occasional elaborations on particular topics or functionality

1.2 Organization

This paper is organized as follows:

Chapter 2: Evaluation Package background material.

Chapter 3: Scripts for exercising Evaluation Package 4.

Questions regarding technical information contained within this Paper should be addressed to the following ECS contact: Thomas (Tom) Dopplick, ECS Science Office, (301) 925-0333, tom@eos.hitc.com.

1.3 Review and Approval

This Technical Paper is an informal document approved at the Office Manager level. It does not require formal Government review or approval.

Questions concerning distribution or control of this document should be addressed to:

Data Management Office
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2. Evaluation Package Background Material

2.1 Next Generation EOSDIS

The next generation of EOSDIS, beyond Version 0, must provide end-to-end services across the broad range of EOS mission operations, from EOS instrument data collection to science data processing to full access to EOS and other Earth science data holdings. Next generation EOSDIS must accommodate high throughput and storage on a scale not seen before by NASA data centers in order to ingest, process, archive, and distribute the high data rates from EOS instruments. EOSDIS' infrastructure, the EOSDIS Core System (ECS), will give EOS and other U.S. and international scientists access to a broad range of services provided by the Distributed Active Archive Centers (DAACs) as well as other data providers who rehost and adapt reusable ECS components. The ECS infrastructure will also support exchange of data and research results within the science community, across multiple agencies, and internationally.

2.2 Multi-Track Development

The ECS Team is developing ECS using a multi-track development approach that includes 1) development of a portion of ECS on an incremental track and 2) parallel development of the remainder of ECS on a formal track using the traditional waterfall development methodology. The two primary drivers for development on the incremental track are 1) anticipated volatility of user-sensitive requirements, and 2) commercial-off-the-shelf (COTS) intensive integration. To accelerate and accommodate early user feedback, a delivery mechanism called an Evaluation Package (EP) was devised to put incremental developments and selected prototypes in the hands of distributed users for evaluation and design iteration significantly in advance of formal track releases. Another purpose of the Evaluation Package is early integration of COTS hardware and software in order to evaluate advertised capabilities of commercial vendors.

2.3 The Evaluation Package Challenge

The key to successful development on the incremental track is to provide structure without creating an administration overload that removes the freedom to react to objectives and design changes dictated by emerging circumstances, such as programmatic changes or technology evolution. To meet this challenge, we have adopted an Evaluation Package life cycle that merges selected practices from more traditional engineering methods with rapid prototyping methodology. For example, an objectives review is held with ESDIS and science community representatives at the beginning of each Evaluation Package to establish common understanding of design and evaluation goals. Other reviews with ESDIS and science community representatives include design, test readiness, consent to ship, and final readiness reviews. At each review, status and lessons learned are discussed and changes incorporated based on feedback by review attendees. Mockups, early prototyping, and in-process demonstrations give reviewers progressively better insight into the planned Evaluation Package functionality.

After final integration and testing, the Evaluation Package software is then distributed to the DAACs and other evaluator sites for a multi-week evaluation. Also, science community representatives are invited to participate in structured usability testing at the ECS development facility in Landover, MD. Usability testing is an efficient and low cost method of testing and quantifying ease of use. Experience to date indicates that the minimum time to produce meaningful content in an Evaluation Package is about six months, and that evaluation will require an additional two months including time for data analysis and results sharing. Details can be found in the Evaluation Package Strategic Plan White Paper which is readily available on WWW using Mosaic from the ECS Data Handling System (EDHS) home page, URL: <http://edhs1.gsfc.nasa.gov/>. The EDHS provides a catalog listing and full text search. Documents of interest can be retrieved in four commonly used formats from simple ASCII text to full-figured Postscript.

2.4 Prior Evaluation Packages

Evaluation Packages 1 through 3 were focused primarily on establishing a distributed testbed environment that interconnected ECS workstations at each DAAC and the ECS development facility in Landover, MD. The testbed environment is built upon an emerging communications technology, Open System Foundation's (OSF) Distributed Communications Environment (DCE). Evaluation Package 3 also introduced mockups of early concepts for the ECS Client.

2.5 Current Evaluation Package

Evaluation Package 4 explores new concepts for the ECS Client based on the revised architecture presented at the ECS System Design Review in June 1994. In particular, Evaluation Package 4 focuses on the Scientist Workbench; search and traversal of advertisements available from the Advertising Service; continued development of EOSView, an ECS tool for viewing Hierarchical Data Format (HDF) data; and continued development of selected communications infrastructure components. The ECS Client now consists of a Scientist Workbench, which contains various tools, and desktop support for organizing user interface objects and setting interface preferences. Note that most of the communications infrastructure is not directly visible to end users but is, nevertheless, critical to developing an extensible and open core system as strongly recommended by the science community and the National Research Council. In addition to OSF's Distributed Computing Environment (DCE), HP's OPENVIEW is also being evaluated for use in the core communications infrastructure.

2.6 Current Status

A 2-month evaluation period of Evaluation Package 4 is scheduled to begin January 1995. Structured usability testing will be conducted at Landover with science community representatives. Additionally, users at the DAACs and other user sites will evaluate and provide feedback on Evaluation Package 4 through on-line surveys. Results of usability testing and evaluation feedback will be analyzed and a report published in March 1995.

2.7 Future

Evaluation Package 5 will be completed in April 1995 but will focus completely on communications infrastructure components needed for Interim Release 1 that supports early interface testing with TRMM and EOS missions. On the horizon, however, is a prototype workshop scheduled for May, 1995 to present prototype concepts to the science community for user interfaces to data search and access services. The results of this prototype workshop will be incorporated in Evaluation Package 6 that will be completed in November, 1995. Evaluation Package 6 will allow users to evaluate the following services: advertising, data dictionary, data search and access, browse, and ECS to V0 interoperability. A second prototype workshop will be held in December 1995 to present prototype concepts for product access, processing requests, and request/results status.

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3. Scripts for Exercising Evaluation Package 4

3.1 Overview

Examples to exercise the functionality of Evaluation Package 4 are presented for three areas:

- I. Exploration of Scientist Workbench
 - I.A Help Menu
 - I.B File Menu
 - I.C Tools Menu
 - I.D Action Menu
- II. Exploration of Advertisement Service
 - II.A Service Types
 - II.B Data Sets and Other Products
 - II.C Data Providers (Data Centers)
 - II.D Search through Advertisements
- III. Exploration of EOSView
 - III.A Tools
 - III.B Simple Animation
 - III.C Scripts

The examples are presented as a list of "actions" and "results" with some introductory material and occasional elaborations on particular topics or functionality.

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Table 3-1. Exploration of Scientist Workbench

I. Exploration of Scientist Workbench I.A Help Menu I.B File Menu I.C Tools Menu I.D Action Menu		
<p><i>Scientist Workbench.</i> The Scientist Workbench is the desktop portion of the ECS Client and allows access to ECS applications and data. The Prototype in Evaluation Package 4 will refine desktop requirements for launching and installing ECS applications. The present prototype uses screens similar to those presented at the ECS System Design Review. The Evaluation Package 4 version of the Scientist Workbench is implemented using native X and Motif. Alternate desktop paradigms for implementing the Scientist Workbench will be incorporated when they are available on more platforms.</p> <p>The ECS Scientist Workbench is the primary interface for working with ECS. Displayed on the Evaluation Package 4 Scientist Workbench are two applications: the "Adv_Service" (Advertising Service) and "EOSView" (HDF viewing tool). Also displayed is a "HDF_Samples" folder that contains sample HDF data files from each DAAC for use in evaluating EOSView. In a fully functioning ECS, data files would be present as the result of previous searches and data retrievals. Desktop pull-down menus contain other tools and aids to assist the user of the Scientist Workbench. An on-line survey is also available so users can enter their numerical evaluation and free text comments.</p>		
	I.A Help Menu	
	Actions	Results
1	Login to the "ECS Workbench"	"ECS Workbench" window is displayed.
2	Select the "On EP4" option from the "Help" menu item	"NCSA Mosaic: Document View" window is displayed containing "Document Title: EP4 Help System" page
3	Select " • Workbench"	"Document Title: Scientist Workbench Help" page is displayed
4	Select " • Launching Applications"	"Document Title: Launching Applications Help" page is displayed

5	Select the "back" button	Returns to "Document Title: Scientist Workbench Help" page
6	Select the "back" button	Returns to "Document Title: EP4 Help System" page
7	Select the "Close Window" button	"NCSA Mosaic: Document View" window closes. Returns to "ECS Workbench" window.
	I.B File Menu	
	Actions	Results
8	Select the "Create Directory" option from the "File" menu item	"prompt_popup" window is displayed
9	At the blinking cursor type "TEMP"	
10	Select OK button	Creates a new folder "TEMP" on "ECS Workbench"
11	Single click "TEMP" folder	Highlights "TEMP" folder
12	Select "Delete Item" option from "File" menu	
13	Select "Yes" button when asked 'Do you want to delete TEMP?'	Deletes "TEMP" folder from "ECS Workbench" window
	I.C Tools Menu	
	Actions	Results
14	Select the "User Survey" option from the "Tools" pull-down menu	"INTERACTIVE EVALUATION TOOL" window is displayed
15	Select "Workbench" button at top of survey	Questions change to those appropriate for Scientist Workbench evaluation
16	Single click in the embedded window at bottom of survey	Activates embedded window
17	Type "text" in embedded window	Verify acceptance of free text

18	Select the "Exit" button	"INTERACTIVE EVALUATION TOOL" window closes. After you finish exploring EP4, return to "User Survey" and enter your numerical evaluation and comments.
19	Select the "EDHS" option from the "Tools" pull-down menu	" NCSA Mosaic: Document View" window is displayed containing "Document Title: EDHS Home Page"
20	Select the "Close Window" button	Returns to "ECS Workbench" window
21	Select the "RRDB" option from the "Tools" pull-down menu	" NCSA Mosaic: Document View" window is displayed containing "RRDB Home Page"
22	Select the "Close Window" button	Returns to "ECS Workbench" window
	I.D Action Menu	
	Actions	Results
23	Single click on the "Adv_Service" icon	Highlights "Adv_Service" icon
24	Select "Execute" option in "Action" menu	"advertise" window is displayed; action launches "ECS Advertising Client"
25	Select the "Exit" option from the "File" pull-down menu	Returns to "ECS Workbench"
26	Single click on the "HDF_Samples" folder	Highlights "HDF_Samples" folder
27	Select "OpenNewWindow" option from the "Action" menu items	Opens "HDF_Samples" folder and presents contents in new "ECS Workbench" window
28	Select "Close" from the "File" pull-down menu on new "ECS Workbench" window	Closes new "ECS Workbench" window

Table 3-2. Exploration of Advertisement Service.

II. Exploration of Advertisement Service II.A Service Types II.B Data Sets and Other Products II.C Data Providers (Data Centers) II.D Search through Advertisements		
<p><i>Advertising Service.</i> The Advertising Service provides the interfaces needed to support the Client browsing and searching of data and service advertisements. The directory function is subsumed by the advertising service. The Prototype in Evaluation Package 4 will flush out search/traversal requirements and interface requirements with the Trader Service (see below). Also, the prototype will be used to determine the level of information that is needed to build useful service advertisements.</p> <p>The Advertising Service is built using a modified MOSAIC interface and should be familiar to those who have used MOSAIC or Netscape. Users can "surf" through advertisements for services, data sets, and data providers (examples II.A, II.B, and II.C) or users can submit queries (example II.D) to find services of interest. Example II.A shows a user finding a hypothetical "AVHRR 1 KM Browse" service. When located, the description of the AVHRR 1KM Browse service and reference icon are presented to the requester. The browse service can be immediately invoked by double clicking on the reference icon or the user can install the reference icon, using drag-and-drop, onto the Scientist Workbench for launching at the user's convenience. A future Evaluation Package will provide the actual browse services. Query forms (shown in example II.D) are also available for finding services of interest.</p> <p><i>Trader Service.</i> The Trader Service, although not directly visible to the user, plays an important role by accepting general service queries from the advertising service and returning objects that match the characteristics of the queries. This service also matches EOSDIS user requests to ECS servers. The prototype for Evaluation Package 4 is a static trader developed using HP's Object Oriented Distributed Computing Environment to allow object passing over the Distributed Communications Environment.</p>		
	II.A Service Types	
	Actions	Results
29	Double click the "Adv_Service" icon	"advertise" window is displayed

30	<p>Scroll down to find:</p> <ul style="list-style-type: none"> • Service Types • Data Sets and Other Products • Data Providers (Data Centers) • Search through Advertisements 	
31	Select "• Service Types"	Opens "Services Types Listing" page
32	Select "Browse" under ECS Services	Opens "ECS Browse Services Listing"
33	Select "AVHRR 1 KM Browse"	Advertising Service locates and displays "AVHRR 1 KM Browse Description" page containing the reference icon (bottom of page)
34	Double click on the AVHRR 1 KM Browse reference icon (bottom of page)	In EP6 double clicking a browse reference icon will invoke an actual Browse Service. In EP4, double clicking the browse reference icon opens the "topLevelShell" window that describes the future browse service.
35	Select "Close" button	Returns to "AVHRR 1KM Browse Description" page
36	Adjust the locations, if necessary, of the "ECS Workbench" and "advertise" windows so the browse reference icon in the "advertise" window can be dragged-and-dropped onto the "ECS Workbench" window.	
37	Using the MIDDLE mouse button, drag-and-drop the browse reference icon onto the "ECS Workbench" window	Installs AVHRR 1KM Browse reference icon on "ECS Workbench." AVHRR 1 KM Browse Service can then be launched at user's convenience. The reference icon remains installed in the Workbench at logoff and is available during future login sessions.
38	Double click the AVHRR 1 KM Browse reference icon on the "ECS Workbench"	In EP6 double clicking a browse reference icon will invoke an actual Browse Service. In EP4, double clicking the browse reference icon opens the "topLevelShell" window that describes the future browse service.
39	Select "Close" button	Returns to "ECS Workbench" window
40	Single click somewhere on "AVHRR 1 KM Browse Description" page	Activates "AVHRR 1 KM Browse Description" page

41	Select "Home" button	Returns to "ECS ADVERTISING SERVICE" page on "advertise" window
	II.B Data Sets and Other Products	
	Actions	Results
42	Scroll down and select "• Data Sets and Other Products"	Opens "Data Listing" page
43	Select "• All Data"	Opens "All Data Set Listing" page
44	Select "• EDC/NOAA Held AVHRR Data"	<p>Advertising Service, interacting with Trading Service, locates and displays "EDC/NOAA Held AVHRR Data Description and Services" page containing a reference icon for each available service.</p> <p>Note that the AVHRR 1 KM Browse reference icon is the same as the reference icon previously installed on the ECS Workbench.</p> <p>Again, one or all of the reference icons could be installed onto the ECS Workbench by drag-and-drop.</p>
45	Single click somewhere on "ECS Workbench" window	Activates "ECS Workbench" window
46	Single click on "AVHRR 1 KM Browse" icon	Highlights "AVHRR 1 KM Browse" icon
47	Select "Delete Item" from "File" pull-down menu	
48	Select "Yes" button when asked 'Do you want to delete AVHRR 1 KM Browse?'	Deletes icon from "ECS Workbench"
49	Single click somewhere on "advertise" window that contains "EDC/NOAA Held AVHRR Data Description" page	Activates "EDC/NOAA Held AVHRR Data Description" page
50	Select "Home" button	Returns to "ECS ADVERTISING SERVICE" page

	II.C Data Providers (Data Centers)	
	Actions	Results
51	Scroll down and select "• Data Providers (Data Centers)"	Opens "Provider Listing" page.
52	Select "• Earth Resources Observation System, USGS (EDC)"	Opens "Earth Resources Observation System, USGS (EDC)" page.
53	Select "Here"	Opens "Detail Description Document" page. In future, this document would describe actual services and data sets available from the provider
54	Select "Home" button	Returns to "ECS ADVERTISING SERVICE" page
	II.D Search through Advertisements	
	Actions	Results
55	Scroll down and select "• Search through Advertisements"	Opens "Searching for Advertisements" page
56	Select "• Services Related to Earth Science Data"	Opens "Earth Science Service Search Options" page
57	Select "• Search Services form"	Opens "Search Services Form" page
58	Scroll down to embedded window titled "Sensor?"	
59	Select AVHRR	Creates query for services associated with sensor AVHRR
60	Scroll down and select "Submit" button	Submits query to Trader Service. Returns "Search Services" page with description of available search services for sensor AVHRR and reference icons. Again, reference icons could be installed onto the ECS Workbench by drag-and-drop.
61	Select "Exit" from File pull-down menu	Returns to "ECS Workbench" window

Table 3-3. Exploration of EOSView.

<p>III. Exploration of EOSView</p> <p>III.A Tools</p> <p>III.B Simple Animation</p> <p>III.C Scripts</p> <p><i>EOSView.</i> This HDF viewing tool will make it easy for anyone, even non-EOS users, to read and understand HDF-EOS data files. Currently, EOSView provides the following capabilities:</p> <ol style="list-style-type: none"> 1. Displays HDF File Structures 2. Displays raster images and 2D arrays as pseudocolor 3. Provides image pan and zoom capability 4. Displays a color palette for selection of alternate palette 5. Provides the capability to overlay bitmap images 6. Provides simple animations 7. Provides a preliminary scripting language <p>EOSView will be widely available, both in terms of physical locations and in terms of supported platforms. Visualization in EOSView will be for the purpose of data verification only. Analysis and presentation of data is best left to commercial applications. A DAAC sampler is available in Evaluation Package 4 with sample HDF files from each DAAC so that users can examine and, where appropriate, visualize samples of current DAAC products.</p> <p>There are several ways to activate EOSView: a) double clicking the EOSView icon, b) drag-and-drop of a HDF data file onto the EOSView icon, or c) double clicking a HDF data file. Each method will result in a display that lets a user view the internal structure of the data file. Those sections of the HDF data file delineated by a "+" sign contain further levels of information or image data. Double clicking a "+Raster Image Group" will activate the image display capability of EOSView. Another option for activating EOSView is to use a script to perform a series of operations such as opening EOSView, displaying the internal structure of the data file, and preparing images for animation. This last option is exercised in III.C.</p>		
	III.A Tools	
	Actions	Results
62	Double click "EOSView" icon on "ECS Workbench" window	Opens "EOSView" window

63	Select "Open" option from "File" pull-down menu	Opens "Filter" window for selecting HDF images
64	Select ".../images/ASF" under "Directories"	Highlights ".../images/ASF"
65	Select "Filter" button	Displays new directory for ".../images/ASF"
66	Select ".../ASF/SEAICE"	Highlights ".../ASF/SEAICE"
67	Select "Filter" button	Displays "Files" within ".../ASF/SEAICE". Note that the directory ".../ASF/SEAICE" contains both TXT and HDF files. EOSView opens only the HDF files.
68	Select "...5496010A.HDF"	Highlights "...5496010A.HDF"
69	Select "OK" button	Opens "Document Title - EOSView: 5496010A.HDF" window and shows the content of the HDF file
70	Double click "+ Raster Image Group (306/1)"	Opens "Document Title - 5496010A.HDF" window with display of image
71	Single click "Zoom +" button	Zoom in
72	Place cursor in miniature image on left side of window. Hold down LEFT mouse button and slowly move around miniature image	Pan around image
73	Select "Palette" pull-down menu	Displays "Select" and "Use entire palette" options on pull-down menu
74	Choose "Select" option on the pull-down menu	Displays additional options: "Default, Greyscale, Antarctica, Rainbow, and World Colors"
75	Select "Greyscale" and other options	Changes color presentation of image
76	Reset option to "Default"	Returns to original color presentation

77	Select "Use entire palette" option on pull-down menu	Changes X-Y grid to red Note: choosing "Use entire palette" for some HDF files can result in loss of all background color.
78	Select "Overlay" option on "File" pull-down menu	Opens "Filter" window. EP4 has no overlay files. In the future, user would use this window to select and apply overlay to image.
79	Select "Cancel" button	Returns to "Document Title - 5496010A.HDF" window
80	Select "Close" option on "File" pull-down menu	Returns to Document Title - EOSView: 5496010A.HDF" window
81	Select "Exit Alt+X" option in "File" pull-down menu	Returns to "ECS Workbench" window
III.B Simple Animation		
	Actions	Results
82	Single click on the "HDF_Samples" folder	Highlights "HDF_Samples" folder
83	Select "OpenNewWindow" option from the "Action" menu items	Opens "HDF_Samples" folder and presents contents in new "ECS Workbench" window
84	Double click "image_demo.hdf" icon	Displays "Document Title - EOSView:b_srb_monavgs_8706.hdf" window
85	Select "Animate images" option from "Options" pull-down menu	Displays "Document Title - b_srb_monavgs_8706.hdf" window and loads all images in HDF file NOTE THAT THIS ANIMATION SEQUENCE CYCLES THROUGH 19 DIFFERENT PARAMETERS FOR THE SAME MONTH. EOSVIEW ANIMATES THE HDF FILE AS PREPARED BY THE DATA PROVIDER. LATER IN III.B WE WILL EXAMINE ANOTHER ANIMATION SEQUENCE WHICH CYCLES THROUGH THE SAME SSMI PARAMETER OVER 9 TIME STEPS.
86	Select "Stop at end" from the "Mode" option from the "Options" menu item	"Stop at end" mode plays in either forward or backward direction and then stops

87	Select the ">>" (play forward) animation button	Animation starts in the forward mode; animation stops at the last frame
88	Select the "<<" (play backwards) animation button	Animation starts in backward mode; animation stops at first frame
89	Select the " " (stop) animation button	Animation stops
90	Select the "> " (frame forward) animation button	Animation moves one frame forward
91	Select the "< " (frame backward) animation button	Animation moves one frame backward
92	Select "Continuous run" from the "Mode" option from the "Options" pull-down menu	"Continuous run" mode plays in either forward or backward direction continuously
93	Select the ">>" (play forward) animation button	Animation starts in the forward mode; animation does not stop at the last frame but continues to the first frame and keeps cycling.
94	Move the speed slider right to increase the speed of the animation	Animation increases in speed
95	Move the speed slider left to decrease the speed of the animation	Animation decreases in speed
96	Select the " " (stop) animation button	Animation stops
97	Select "Bounce" from the "Mode" option from the "Options" pull-down menu	"Bounce" mode plays in one direction and then reverses, bouncing between directions
98	Select the ">>" (play forward) animation button	Animation starts in the forward mode; animation plays in the forward mode until the last frame and then plays in the backward mode until the first frame and continues this cycle.
99	Select the " " (stop) animation button	Animation stops

100	Select "Close" option from "File" pull-down menu	Returns to "Document Title - EOSView: b_srb_monavg_8706.hdf" window
101	Select "Exit Alt+X" from "File" pull-down menu	Returns to second "ECS Workbench" showing the contents of "HDF_Samples" folder This concludes the animation example of 19 parameters for the same month
		THIS ANIMATION SEQUENCE SHOWS THE SAME SSMI PARAMETER AS IT VARIES OVER 9 TIME STEPS.
102	Double click "MSFC" folder	Displays contents of "MSFC" folder
103	Double click "SSMI_movie.hdf" icon	Opens "Document Title - EOSView: SSMI_movie.hdf" window
104	Select "Animate images" option from "Options" pull-down menu	Opens "Document Title - SSMI_movie.hdf" window. Loads images to be animated.
105	Select "Continuous run" option from "Mode" option from "Options" pull-down menu	"Continuous run" mode plays in either forward or backward direction continuously
106	Select ">>" (play forward) animation button	Animation starts in forward direction
107	Select " " (stop) animation button	Animation stops
108	Select "Close" option from "File" pull-down menu	Returns to "Document Title - EOSView: SSMI_movie.hdf" window
109	Select "Exit Alt+X" from "File" pull-down menu	Returns to window displaying contents of "MSFC" folder
110	Double click on upper left icon showing open folder	Returns to second "ECS Workbench" window displaying contents of "HDF_Samples" folder

	III.C Scripts	
	Actions	Results
111	Double click "anim_demo.hdf" icon	Double clicking icon activates a script that: 1) Opens "Document Title - EOSView: TOVS_MONTHLY_PM_8810.HDF_BROWSE " window that displays HDF content 2) Activates "Animate Images" option from "Options" pull-down menu 3) Opens "Document Title - TOVS_MONTHLY_PM_8810.HDF_BROWSE " window 4) Animates images using "Stop at end" from the "Mode" option from the "Options" pull-down menu
112	Select "Bounce" from the "Mode" option from the "Options" pull-down menu	"Bounce" mode plays in one direction and then reverses, bouncing between directions
113	Select the ">>" (play forward) animation button.	Animation starts in the forward mode; animation plays in the forward mode until the last frame and then plays in the backward mode until the first frame and continues this cycle.
114	Select the " " (stop) animation button	Animation stops
115	Select "Close" option from "File" pull-down menu	Returns to "Document Title - EOSView: TOVS_MONTHLY_PM_8810.HDF_BROWSE " window
116	Select "Exit Alt+X" from "File" pull-down menu	Returns to second "ECS Workbench" window showing the contents of "HDF_Samples" folder
117	Select "Close" option from "File" pull-down menu	Closes second "ECS Workbench" window
118	Select the "User Survey" option from the "Tools" pull-down menu	"INTERACTIVE EVALUATION TOOL" window is displayed

119	Complete numerical evaluation and enter any comments	
120	Select the "Save" button after completing the "User Survey"	Saves answers and comments
121	Select the "Exit" button	"INTERACTIVE EVALUATION TOOL" window closes.
122	Select "Exit" option from the "File" pull-down menu	
123	Select "Exit" button when asked 'Exit ECS Workbench?'	Logoff EP4